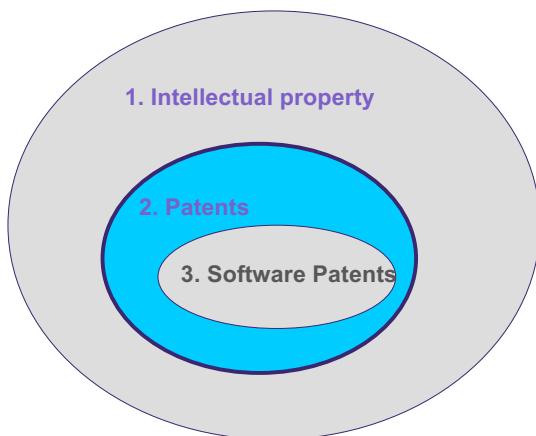


Intellectual Property

Stuart Irvine
Ben Hayes
October 2019 @ UNSW

Overview



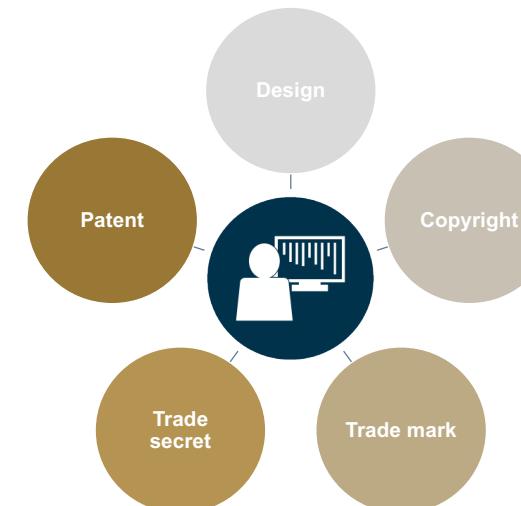
Intellectual property

"Patents and copyrights are the legal implementation of the base of all property rights: **a man's right to the product of his mind.**"

"What the patent and copyright laws acknowledge is the paramount role of mental effort in the production of material values: these laws protect the mind's contribution in its purest form: **the origination of an idea.**"

- Ayn Rand in *Capitalism: The Unknown Ideal*

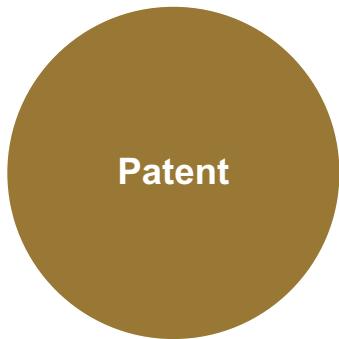
Intellectual Property



How they differ:

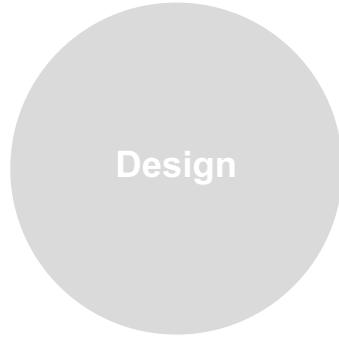
- What they protect
- Duration
- How to acquire
- How to enforce

Intellectual Property



- Protects **functionality**
- Duration **up to 20 years**
- How to acquire
 - Practical utility
 - New
 - Non-obvious
 - Eligible subject matter
- How to enforce
 - Falls within the patent

Intellectual Property



AU design no.
342337



AU design no.
331716



AU design no.
334926



AU design no.
333713



AU design no.
360961

- Protects **appearance**
- Duration **around 10-25 years**
- How to acquire
 - Not identical or substantially similar
- How to enforce
 - identical or substantially similar

Intellectual Property



- Protects **brands**
- A **sign** capable of distinguishing a trader's goods/services.
- Duration **indefinitely**
- How to acquire
 - First use in commerce
 - Honest concurrent use
- How to enforce
 - substantially identical and/or deceptively similar

Technology intelligence

Apple fires employee after daughter's video of iPhone X goes viral



Save 7



Apple's iPhone X in the new leaked footage CREDIT: YOUTUBE



Intellectual Property

Trade secret

- Protects confidential information
- Duration as long as can be kept confidential
- How to acquire
 - Information imparted under an obligation of confidence
 - Information has quality of confidence
 - e.g. closed-source software?
- How to enforce
 - Unauthorised use or disclosure
 - Detriment
 - Ineffective against reverse engineering or independent formulation

Intellectual Property

Copyright ©

- Protects Expression of an idea. Literary, artistic, musical, performance...includes computer programs (in C++, Fortran, etc)
- Duration until death+70years
- How to acquire
 - No registration required
 - Original work upon material form
- How to enforce
 - Substantial copying
 - Will not protect against independent creation / function

Why patents?



A legal contract:

Between the patentee and the government

Right to exclude others from exploiting your invention for a fixed period

In return for a full disclosure of the invention

Why patents?

Patentee's perspective: Encourages R&D (e.g. pharmaceuticals)

Society's perspective: Encourages disclosure of incremental inventions

Government's: International obligations:

- World Trade Organisation
 - TRIPS agreement – minimum standards for IP
- "Subject to [some exclusion], **patents shall be available for any inventions**, whether products or processes, in all fields of technology, provided that they are **new, involve an inventive step** and are capable of **industrial application**..."*

Who owns a patent?

Ownership

- Inventor
- Employer
- University

Assignments

- Transfer of ownership

Licences

- No transfer of ownership
 - sole
 - exclusive (not even the patent holder!)
 - non-exclusive

Why patents?

Patentee's perspective



Sword

- Royalty
- Cease & desist

Shield

- Deter competitors
- Create risk and uncertainty

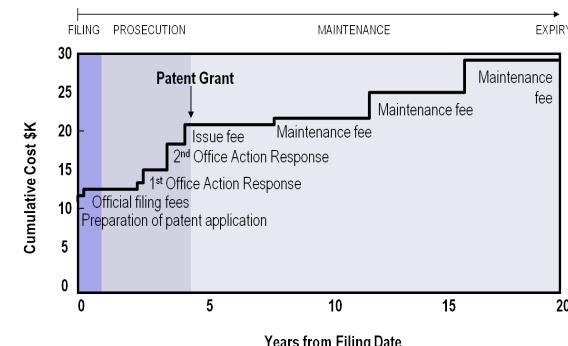


Treasure chest

- Negotiate
- Increased valuation
- Attract capital investment



Costs & benefits



(Source: <http://timreview.ca/article/501>)

What can be patented vs what is worth patenting

Technical considerations

- Patent vs Secrecy
- New & non-obvious?

Commercial considerations

- Costs of obtaining patent rights
- Is there a market?
- How do I enforce patent rights

Strategic considerations

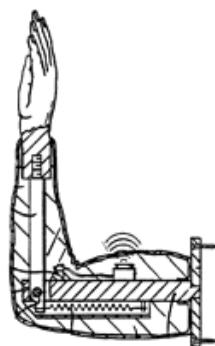
- Do I want to attract capital?
- Do my competitors patent a lot?

Patent validity and infringement: hypothetical

US 5356330 (1994)

Apparatus for simulating a 'high five'

...providing the user with
a convenient outlet for
the release of excitement



Chairs



Suck



Document Title Position and Style

Not mine



Document Title Position and Style

Patents here we come!

Claim:

1. A chair comprising:
a seat; and
at least four legs secured to the
seat such that, in use, the seat is
substantially horizontal.



Document Title Position and Style

Pesky examiners & prior art



Prior art citation

Document Title Position and Style

But it's nothing like my chair ... is it?

Claim

1. A chair comprising:
a seat; and
at least four legs secured to the seat such that, in use, the seat is substantially horizontal.



Document Title Position and Style

But it's nothing like my chair ... is it?

Claim option 1

1. A chair comprising:
a seat having a seating surface, the seating surface defining a seating plane; and
at least four legs secured to the seat such that, in use, the seat is substantially horizontal, each of the four legs extending in direction **substantially normal** to the seating plane.



Claim option 2

1. A chair comprising:
a seat having a seating surface, the seating surface defining a seating plane; and
at least **four** **three** legs secured to the seat such that, in use, the seat is substantially horizontal; and
a backrest comprising a backrest surface defining a backrest plane, the backrest supported such that, in use, the backrest is positioned above the seat and the backrest plane is approximately normal to the seating plane.

Document Title Position and Style

Lets do both

Patent 1

1. ... at least four legs ...
extending in direction
substantially normal to the
seating plane.



Document Title Position and Style

Patent 2

1. ... at least three legs ...
...
a backrest ... approximately
normal to the seating plane.



Enter the competition

Document Title Position and Style

The competition 1



No. Just ... no.

Stupid patent owner...

Document Title Position and Style

The competition 2

Patent 1

1. ...at least four legs ...
extending in direction
substantially normal to the
seating plane.

?

X



Probably not this one either.

(But what on earth does 'approximately normal' mean anyway?)

Document Title Position and Style

Stupid patent attorney ...

The competition 3

Patent 1

1. ...at least four legs ...
extending in direction
substantially normal to the
seating plane.

✓



Patent 2

1. ... **a backrest**

X

SUE

Document Title Position and Style

The competition 4

Patent 1

1. ...**at least four legs**

X



Patent 2

1. ... at least three legs ...
...
a backrest ...
approximately normal to the
seating plane.

✓

SUE (Patent 2)

Document Title Position and Style

The competition 5

Patent 1

1. A chair



Patent 2

1. ... a backrest



What is this?

(A seat or a serving platter?)

Document Title Position and Style
**My even betterer chair:
straight to market**



Document Title Position and Style

Patent infringement – who me?

Annoying Chair Co. patent 1,234, 567

1. A chair comprising:

a seat having a seating surface, the seating surface defining a seating plane; and

a plurality of legs secured to the seat such that, in use, the seat is substantially horizontal; and

at least one armrest, the or each armrest comprising an armrest surface defining an armrest plane, the armrest supported such that, in use, the armrest is positioned above the seat and the armrest plane is approximately parallel to the seating plane.



SUED?

Document Title Position and Style

But hang on ...

Annoying Chair Co. can't make/sell/market its chair because it will infringe my patent 1 and 2.

I can't make/sell/market my betterer chair because it will infringe annoying Chair Co's patent.

WTF?



Document Title Position and Style

Me and the Annoying Chair Co.

Dear Annoying Chair Co.

We are in receipt of your <insert appropriate level of offence> letter alleging patent infringement. Blah blah blah unjustified threats blah blah blah.

We draw your attention to our patent 1 and patent 2. If you try and manufacture/sell your chair we will ~~annihilate~~ you - consider all options available to us.

Blah blah blah without conceding infringement or that your patent is valid blah blah blah without prejudice blah instead of going to court why don't:

1. We just go our own separate ways: you leave me alone and I'll leave you alone
2. You buy us out
3. We buy you out

4. We join forces and take over the chair world



Software (and ‘business method’ patents)

Validity: Eligible subject matter

Controversial areas:

- Naturally occurring biological material
- Genetic sequences
- Stem cells
- Human beings/biological processes for their generation
- Methods of medical treatment

- Business methods
- Computer implemented inventions (software)

Document Title Position and Style

Computer implemented inventions

Some jurisdictions (e.g. Europe) have legislative exclusion for software ‘per se’.

The truth of the matter is this: Inventions that use computer programs to provide a business process - not a technical process - are not patentable”

(European Patent Office)

Others (e.g. AU and US) don’t have a legislative exclusion, but a framework that has essentially put decision in the hands of the judiciary. E.g. the US:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof may obtain a patent therefor, subject to the conditions and requirements of this title.

But the US Supreme Court has held that implicit exceptions exist for “[l]aws of nature, natural phenomena, and abstract ideas,” which are “the basic tools of scientific and technological work”.

Computer implemented inventions

Complex and changing

Computer implemented inventions that achieve **non-technical** advantages (e.g. business, aesthetic, mere presentation of information)

Computer implemented inventions that achieve **technical** advantages (e.g. processing, power, communications, user interfaces)

Document Title Position and Style

Computer implemented inventions

Computer implemented inventions that achieve **non-technical** advantages (e.g. business, aesthetic, mere presentation of information)

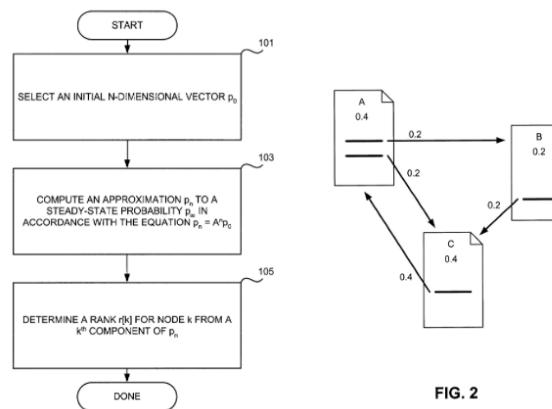
Computer implemented inventions that achieve **technical** advantages (e.g. processing, power, communications, user interfaces)

E.g. of a claim very unlikely to be patent eligible subject matter:

1. A computer implemented method for performing a transaction comprising:
 - processing an invoice to extract a purchase bank account identifier;
 - processing the invoice to extract a vendor bank account identifier;
 - processing the invoice to determine a transaction amount; and
 - causing the transaction amount to be transferred from the purchaser vendor bank account to the vendor bank account.

Document Title Position and Style

US 6,285,999 (1998) Google's PageRank patent



The basic idea was that information could be ordered in a hierarchy by "link popularity"; the more links a page had, the more popular it was, and thus should be ranked higher.

Patent claim e.g. #1

A method for establishing cryptographic communications comprising the step of:
encoding a digital message word signal M to a ciphertext word signal C,
where M corresponds to a number representative of a message and

$$0 \leq M \leq n-1$$

where n is a composite number of the form

$$n=p \cdot q$$

where p and q are prime numbers, and
where C is a number representative of an encoded form of message word
M,
wherein said encoding step comprises the step of:
transforming said message word signal M to said ciphertext word signal C
whereby

$$C \equiv M^e \pmod{n}$$

where e is a number relatively prime to $(p-1) \cdot (q-1)$.

Patent claim e.g. #2

A method for diminishing cross channel interference in a data reduction process during the transmission and storage of digital signals from N dependent channels, the method comprising the steps of:

transforming blockwise scanning values of signals from the time domain into the frequency domain in spectral values, said spectral values being encoded, transmitted and/or stored, decoded and transmitted back in N channels in the time domain;

determining a single quantity which is a measure for an overall spectral separation between the different channels, based on the spectral values for corresponding blocks of the different channels;

comparing the quantity with a predetermined threshold;

performing common encoding of said channels when the quantity falls below the predetermined threshold; and

performing separate encoding of said channels when the quantity exceeds the threshold.



[Fraunhofer-Ges, US patent no. 5,812,672, filed 1991](#)

Thank you.

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Patent claim e.g. #3

A method for transmitting data in a confined multipath transmission environment at radio frequencies in excess of 10 GHz,

said data being provided by an input data channel coupled to transmission signal processing means in turn coupled to antenna means,

said method comprising the steps of:

modulating said data, by modulation means of said transmission signal processing means, into a plurality of sub-channels comprised of a sequence of data symbols such that the period of a sub-channel symbol is longer than a predetermined period representative of the time delay of significant ones of non-direct transmission paths; and

transmitting, by said antenna means, said sub-channel symbols at said radio frequencies in excess of 10 GHz.



[CSIRO, US patent no. 5,487,069 , filed 1992](#)